Amendments to the Drawings

The attached sheet of drawings includes changes to FIG. 5. This sheet, which includes FIG. 5, replaces the original sheet including FIG. 5.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Objection to the drawings / Amendments to the specification and drawings

The Examiner has objected to the drawings by mentioning that the "data storage" and "data storage controller" of claim 19 are not shown in the drawings.

Applicants have amended claim 19 to replace "data storage" with "storage", and "data storage controller" with "storage controller". Paragraph 42 of the original specification includes the term "storage controller", and paragraph 42 of the specification has been amended to include the reference numeral of 514 to denote the storage controller. In addition, original FIG. 5 has been amended to include the storage controller 514. No new matter has been added.

Claim Objections

The Examiner has objected to claim 9 by indicating that the claim appears to lack the statement as to where the processor is located. Applicants traverse the objection to claim 9 and submit that the there is no requirement that the location of the processor has to be specified in claim 9. Should the Examiner maintain the rejection, the Examiner is requested to indicate the reason why the location of the processor has to be indicated in claim 9.

Claim Rejections under 35 U.S.C. 103

The Examiner has rejected claims 1-30 under 35 U.S.C. 103(a) as being unpatentable over Awasthi (US patent publication 2002/0087712) in view of Campbell (US 6,779,054). Applicants traverse the rejections of claims 1-30.

Independent claims 1, 22(and also independent claims 10, 19)

Independent claims 1 and 22 require:

configuring a plurality of timers with interrupt event arrival rates;

measuring a rate of arrival of one or more interrupt events; and

asserting an interrupt, in response to the measured rate of arrival of the one or more interrupt events being lower than the interrupt event arrival rates configured in the plurality of timers.

The Examiner has rejected claims 1, 22 under 35 U.S.C. 103(a) as being unpatentable over Awasthi in view of Campbell. Applicants traverse.

The claims require configuring a plurality of timers with interrupt event arrival rates and neither the cited Awasthi (paragraph 11, 17-22, 27, 29) or the cited Campbell (col. 1, lines 60-63; col. 4, line 67; col. 5, lines 1-16; col. 5, lines 66-67; col. 6, lines 1-4) teach or suggest these claims limitations, either alone or in combination.

The Examiner has mentioned (Office Action, page 3, Item 3) that the cited Awasthi (paragraphs 11, 17-22, 27, 29) discusses "configuring a plurality of conditional values comprising of data packet transmit size, queue size, and arrival rate threshold (T)". The Examiner has mentioned (Office Action, page 4) that the cited Awasthi fails to teach the plurality of timers. According to the Examiner, the cited Campbell "teaches the use of timer to regulate interrupts."

The claims require configuring a plurality of timers with interrupt event arrival rates, i.e., the claims require a plurality of interrupt event arrival rates with which a plurality of timers are configured.

. The cited Awasthi uses a single arrival rate threshold, T, to regulate the transmission of data packets. For example, paragraph 22 of the cited Awasthi mentions that the calculated arrival rate is compared to an arrival rate threshold (T), where the value of the arrival rate threshold (T) is set to a number that is based on hardware and software considerations. Therefore, the cited does not teach or suggest the claim requirement of a plurality of interrupt event arrival rates with which a plurality of timers are configured. There is a single arrival rate threshold, T in the cited Awasthi, whereas the claims require a plurality of interrupt event arrival rates with which a plurality of timers are configured.

The cited (col. 5, lines 5-11) Campbell discusses a transmit delay timer that is used for regulating interrupts, where the transmit delay timer can be reset or can expire. However, nowhere does the cited Campbell teach or suggest the claim requirement of configuring a plurality of timers with interrupt event arrival rates, i.e., with a plurality of interrupt event arrival rates. While the cited Campbell discusses a timer, the cited Campbell does not teach or suggest the claim requirement of a plurality of interrupt event arrival rates with which a plurality of timers are configured.

Therefore, neither the cited Awasthi nor the cited Campbell teach or suggest the claim requirements of a plurality of interrupt event arrival rates that are used to configure a plurality of timers, either alone or in combination.

Additionally, the claims require asserting an interrupt, in response to the measured rate of arrival of the one or more interrupt events being lower than the interrupt event arrival rates configured in the plurality of timers, and the Examiner has mentioned that paragraphs 11, and 29 of the cited Awasthi discloses these claim requirements. Paragraph 11 of the cited Awasthi discusses topologies of a network, and paragraph 29 of the cited Awasthi discusses that if "the arrival rate" is below the "rate threshold" then the input data packet is transferred directly to the application program. Therefore, the cited Awasthi is discussing whether the arrival rate is lower than "the rate threshold", i.e., the comparison in the cited Awasthi is with a single rate threshold. The claims require a plurality of interrupt event arrival rates, and in response to the measured rate of arrival of the one or more interrupt events being lower than the interrupt event arrival rates, an interrupt is asserted. Therefore, neither the cited Awasthi nor the cited Campbell teach or suggest the claim requirements of asserting an interrupt, in response to the measured rate of arrival of the one or more interrupt events being lower than the interrupt event arrival rates configured in the plurality of timers, either alone or in combination.

The Examiner has rejected independent claims 10, 19 by referring back to the rejection of claims 1, 22 and other claims. The reasons provided for the patentability of claims 1 and 22 are also reasons for the patentability of independent claims 10 and 19.

For the above reasons independent claims 1, 10, 19, 22 are patentable over the cited art.

Dependent claims 2-9, 11-18, 20-21, 23-30

Dependent claims 2-9, 11-18, 20-21, 23-30 are patentable over the cited art because dependent claims 2-9, 11-18, 20-21, 23-30 depend directly or indirectly on the independent claims 1, 10, 19, 22 which are patentable over the cited art for the reasons provided above. Additional reasons for the patentability of certain of these dependent claims are provided below.

Claims 2, 11, 23

Claims 2, 11, 23 depend on claims 1, 10, 22 respectively, wherein the one or more interrupt events include arrivals of packets, and wherein the configured interrupt event arrival rates are different for at least two timers, and the measuring is performed with the at least two timers, and wherein the plurality of timers represent measuring devices.

The amendments to claims 2, 11, 23 have been made without adding any new matter. The requirement that the plurality of timers represent measuring devices can be found in at least page 5, line 9 (Paragraph 19) of the Application.

The Examiner has mentioned that the cited Awasthi fails to disclose the claim requirement that the configured interrupt event arrival rates are different for at least two timers, and the measuring is performed with the at least two timers. The Examiner has mentioned that the cited Campbell discusses the use of timer, and has mentioned that it would have been obvious to one of ordinary skill in the art, to user timers instead of "a plurality of conditional values" [term used by Examiner] of the cited Awasthi.

Applicants submit that in page 3 of the office action, the Examiner as mentioned that the "pluralities of conditional values" of the cited Awasthi comprise data packet transmit size, queue threshold, queue size, and arrival rate threshold. Therefore, the conditional values mentioned by the cited Awasthi are values. The amended claims 2, 11, 13 require the timers to be measuring devices. The conditional values mentioned by the cited Awasthi are values and not measuring devices of the claim requirement.

If the timers of the cited Campbell are used instead of "conditional values" in the system of the cited Awasthi, the system of the cited Awasthi would become inoperable because timers that represent measuring devices as required by the claims are different from values, and substituting values with measuring devices would make the system of the cited Awasthi inoperable.

Additionally, the timers that represent measuring devices are configured with interrupt event arrival rates that are different for two different timers and this claim requirement is neither taught nor suggest by the cited Awasthi or the cited Campbell.

The Examiner mentions on page 6, of the Office action, that "it would have been obvious to one of ordinary skill in the art, at the time of invention was made to use plurality of timer in place of plurality of conditional values, therefore it would be obvious that the interrupt event

arrival rates are different for at least two timer". Applicants submit that even if two timers are used that still would not teach or suggest the claim requirement that the configured interrupt event arrival rates are different for at least two timers, because even if two timers are used the two timers could measure the same interrupt event arrival rate.

Additionally, according to 2143.01 of the Manual of Patent Examining Procedure (MPEP) Rev. 3, August 2005 "the prior art must suggest the desirability of the claimed invention" (page 2100-135) and the "fact that references can be combined or modified is not sufficient to establish prima facie obviousness"(page 2100-137). The Examiner has not shown any proper suggestion or motivation in the cited Campbell or the cited Awasthi to arrive at the claim requirements. Regulation of interrupts is an improper and inadequate motivation because interrupts can be regulated in many ways. For example, both Awasthi and Campbell regulate interrupts in different ways. Additionally, other motivations provided by the Examiner are based on hindsight and derive from the claim language itself.

For the above reasons claims 2, 11, 23 are patentable over the cited art.

Claims 3, 12, 21, 24

Claims 3, 12, 21, 24 depend on claims 1, 10, 19, 22 respectively, wherein in response to asserting the interrupt, the plurality of timers are restarted.

The Examiner has mentioned that col. 4, line 67 and col. 5, lines 1-16 of the cited Campbell discuss the restarting of time in response to asserting the interrupt. Nowhere does the cited Campbell teach of disclose the claim requirement that a plurality of timers are restarted. The cited Campbell discusses restarting a single transmit delay timer.

For the above reasons claims 3, 12, 24 are patentable over the cited art.

Claims 4, 13, 20, 25

Claims 4, 13, 20, 25 depend on claims 1, 10, 19, 22 respectively, the configuration of the plurality of timers further comprises:

initializing the plurality of timers with countdown time periods, wherein a countdown time period measures a period of time; and

initializing each of the plurality of timers with a reset criterion, wherein a first reset criterion for a first timer indicates a first number of interrupt events that are to be received by the

first timer within a first countdown time period for the first timer to be restarted, and wherein a second reset criterion for a second timer indicates a second number of interrupt events that are to be received by the second timer within a second countdown time period for the second timer to be restarted.

The newly added requirement that a second reset criterion for a second timer indicates a second number of interrupt events that are to be received by the second timer within a second countdown time period for the second timer to be restarted does not add any new matter.

Nowhere does the cited Awasthi or the cited Campbell teach or suggest the claim requirements of:

a first reset criterion for a first timer indicates a first number of interrupt events that are to be received by the first timer within a first countdown time period for the first timer to be restarted;

a second reset criterion for a second timer indicates a second number of interrupt events that are to be received by the second timer within a second countdown time period for the second timer to be restarted.

Should the Examiner maintain the rejection of the claims the Examiner is requested to indicated where the cited Awasthi or the cited Campbell teach or suggest both the first reset criterion and the second reset criterion of the claim requirements.

For the above reasons, claims 4, 13, 20, 25 are patentable over the cited art.

Claims 5, 14, 26

Claims 5, 14, 26 depend on claims 1, 10, 22 respectively, wherein the configuration of the plurality of timers regulates a latency of an arriving interrupt event in generating interrupts.

The Examiner has mentioned in page 4 of the office action that it would have been obvious to one of ordinary skill in the art to use a plurality of timers in place of a plurality of conditional values and therefore the claim requirements of claim 5, 14, 26 would be obvious.

Applicants submit that there is no motivation or suggestion in either the cited Awasthi or the cited Campbell to arrive at the claim requirements. Additionally, even if a plurality of timers were used, that would still not provide any motivation for the claim requirement that the configuration of the plurality of timers regulates a latency of an arriving interrupt event in generating interrupts.

For the above reasons, claims 5, 14, 26 are patentable over the cited art.

Claims 8, 17, 29

Claims 8, 17, 29 depend on claims 1, 10, 22 respectively, the configuration and assertion are performed by an interrupt moderator included in a computational device, wherein the interrupt moderator includes the plurality of timers, wherein an interrupt moderation level of a first timer is different from an interrupt moderation level of a second timer.

The Examiner has rejected the claims my mentioning that "as a design choice" (page 6 of the Office Action) the interrupt moderator can be defined such that the interrupt moderation level of a first timer is different from an interrupt moderation level of a second timer. The motivation provided by the Examiner of "design choice" is improper and inadequate. Design choice can lead to many different designs and the Examiner is using hindsight by using the claim language itself as a design choice.
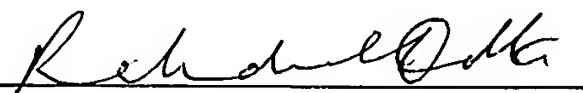
For the above reasons, claims 8, 17, 29 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-30 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 557-2292 if the Examiner believes such contact would advance the prosecution of the case.

Dated: October 21, 2005

By:_____

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